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Job # 33-0241SA  
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PROJECT OXCART  
AND  
OPERATION BLACK SHIELD  
BRIEFING NOTES

20 October 1965

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I. BACKGROUND OF A-12 DEVELOPMENT

HISTORICAL:

The OXCART program concept began in July 1957 with a preliminary design study effort involving Lockheed and Convair focusing on development of a follow-on to the U-2 aircraft. In August 1959 this study phase was completed with a preliminary contract award to Lockheed. In September 1959 a contract was awarded to Pratt & Whitney for the development of the J-58 engine. In February 1962 the first aircraft was rolled out and in April 1962 the first flight was completed.

Mach 3 flight was attained in July 1963. In November 1964, a limited operational contingency capability at Mach 2.8 was established for overflight of Cuba. Much of 1965 has been spent in aircraft modifications which were based on lessons learned from flight test experience. Recent flight experience indicates substantial systems improvement and has demonstrated a capability to repeatedly fly at Mach 3 for prolonged durations and at altitudes above 80,000 feet. With additional systems refinement and simulated mission demonstration now underway, an operational capability should be attained by December of this year.

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#### RADAR CROSS SECTION:

Though the A-12 aircraft radar cross-section has been reduced considerably, the aircraft can be detected by Soviet radar. Defensive electronic countermeasures equipments have been developed, tested and installed to considerably reduce the risk to the aircraft in a hostile environment. Further efforts to reduce radar cross-section are under consideration and development of second generation countermeasures equipment is underway.

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#### SIGNIFICANT DEVELOPMENT PROBLEMS ENCOUNTERED:

Fabrication of titanium. Since little was known in this area at the beginning of the program, fabrication procedures and techniques were implemented concurrently with manufacture by a trial and error method as experience was gained. Flight demonstration has substantiated these techniques.

Air inlet and controls. Approximately two years of flight test were expended prior to the demonstration of acceptable reliability permitting repetitive Mach 3 flight. The fast reaction times required and repeatable accuracy demanded by Mach 3 speeds and temperatures coupled with rapid airflow transients lead to additional control complexities which in themselves required development, refinement, and confirmation.

Fuel tank sealant life at high Mach temperatures. Development of sealants to continuously withstand 750°F temperatures has come hard and is not now delaying the program. Development is continuing for higher temperature capabilities.

Durability and maintenance of high temperature electrical wiring and connectors. This program has had to spearhead the state-of-the-art improvement in this area where this equipment must remain durable in

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the face of repetitive sustained high Mach flights coupled with making and breaking connections during routine maintenance. This condition has contributed to current problems involving communications equipment reliability.

Turbine inlet temperature profile. Flight demonstration has substantiated ground engine qualification testing in this area at rated temperature of 2000°F.

Controls accuracy development. Engine power control accuracy is critical at Mach 3 speeds and must exhibit extremely tight tolerances from sub-zero to 800°F environmental temperatures with widely varying fuel flows. Flight demonstration is now substantiating this required accuracy.

Engine life at high Mach flight. While acceptable engine durability has been demonstrated over many flights, inspections must be made after every ten hours at Mach 3 to insure acceptability of the combustion section. Flight and ground test development is continuing for the purpose of increasing these inspection intervals.

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II. PRESENT STATUS

STATISTICS:

Number of flights: 1640  
Total number of hours: 2370  
Maximum Speed: MACH 3.29 (1890 Knots) (2175 m.p.h.)  
Maximum Altitude: 90,000 Ft.  
Maximum time at MACH 3.2: 1:14 Hours  
Longest Supersonic flight: 6:10 Hours (With 2 refuelings  
and 2:50 Hours above MACH 3.)  
A-12 Inventory: 11 aircraft (one a trainer)

Number of flights and total hours above certain MACH numbers  
(thru 30 September 1965)

<u>MACH No.</u>	<u>Flights</u>	<u>Time</u>
2.0	818	471:03
2.6	515	234:03
2.8	377	153:19
3.0	215	68:50
3.2	74	15:22

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**AIRCRAFT MODIFICATION PROGRAM:**

As flight testing of the A-12 aircraft proceeded various problems emerged which required modification to the basic design. These modifications were primarily in the areas of propulsion, electrical and communication systems. As of this date, four aircraft have been modified. Three are currently undergoing modification; three are assigned as flight test aircraft; and one is a two-place trainer.

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**RELIABILITY:**

Flying accomplished subsequent to the recent aircraft modification program has demonstrated considerable improvement in aircraft performance and ancillary systems. Specifically, the air inlets, the camera, navigation and flight control systems have demonstrated repeatability of performance. However, secondary problems remain in such areas as cockpit instrumentation and oil pressure transducers but an intensive program is underway to solve them.

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**VULNERABILITY AND ECM STATUS:**

All electronic countermeasures equipments scheduled for current use in the A-12 are on hand. These systems have been flown and operated successfully in A-12 aircraft.

These systems in combination with the operational speed and altitude of the aircraft and the unique anti-radar plastic panels on the airframe, give the A-12 an acceptable level of invulnerability to unfriendly environments.

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**PILOTS:**

There are seven CIA pilots currently assigned to the A-12 program, all of whom have over 200 flying hours in the aircraft. All are considered qualified and operationally ready at MACH 3.2.

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### III. OPERATION BLACK SHIELD

#### OBJECTIVE:

The objective of BLACK SHIELD is to employ the A-12 to provide photographic coverage of critical targets in China and Southeast Asia. This capability will be formed by deploying A-12 aircraft and necessary resources to Kadena AB, Okinawa.

With the increased CHICOM defenses (SA-2 missiles and MIG-21 aircraft) certain areas in China have been denied to the U-2 aircraft. It is anticipated that the number of such areas will increase with time. While the satellite reconnaissance program can satisfy long-range requirements, it does not have a quick reaction capability to meet Community requirements. The A-12 aircraft, operationally ready and pre-positioned, can maintain an on-call quick reaction capability to crisis situations.

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PLAN OF ACTION:

A detachment comprised of approximately 225 people with three A-12 aircraft and necessary support equipment will be deployed to Kadena AB, Okinawa. The Strategic Air Command 903rd Air Refueling Squadron from Beale AFB, California, will deploy to Kadena AB and provide necessary tanker support for air refueling.

Necessary temporary facilities required to support the A-12 detachment at Kadena have been furnished by DOD and are essentially ready for use.

Operational missions will be planned, directed, and controlled by CIA headquarters as approved by higher authority against targets of Community interest. The initial operational period will be of 60-days duration during which time approximately eight over-flight missions can be flown. Mission pilots will be American civilians under contract to CIA.

The operational mission profile will be flown at a speed of Mach 3.1 with range extension provided by aerial refuelings, which will be accomplished enroute outside the enemy Early Warning net. The minimum penetration altitude will be 76,000 feet. With aerial refuelings, the majority of critical targets in China and Southeast Asia can be photographed by the A-12.

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**SCHEDULE FOR DEPLOYMENT:**

During late December it is planned to conduct an operational readiness test of the A-12 detachment and supporting forces prior to deployment. This will include simulated operational mission generation and actual launch and flight of the A-12 within the Zone of Interior.

The A-12 will deploy from  early January with an enroute stop at Hickam AFB, Hawaii. The three A-12 aircraft should be in place at Kadena AB, Okinawa, by mid-January. The aircraft and detachment will be readied to conduct the first operational mission on 25 January 1966.

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DECISION DATES: (See Attached Chart)

In order to meet the BLACK SHIELD operational date of 25 January 1966, there are four major preparatory actions which will require decisions at varying high levels of the government.

These major actions with the required decision dates follow:

1. By 1 November 1965: Movement of advance party and airlift of materiel. Decision by this date will provide necessary time for the coordination of airlift, preparation of materiel and actual movement during the last week of November. Approximately 300,000 pounds of materiel will be airlifted.
2. By 15 December 1965: Personnel airlift. The majority of the A-12 detachment personnel are scheduled for deployment to Kadena AB during the first week of January 1966.
3. By 15 December 1965: Deployment of the A-12. This will provide time for the deployment of aircraft to Kadena AB and the regeneration of the aircraft into an operationally ready configuration prior to the 25 January 1966 target date.
4. By 15 January 1966: First operational mission approval. If the first operational mission is to be executed on 25 January 1966, the approval decision must be made by 15 January 1966 to provide time for necessary planning and coordination within the government and with the operating detachment. This will require approval from the highest authority.

# BLACK SHIELD KEY ACTIONS

	OCT	NOV	DEC	JAN
Aircraft		AIRCRAFT & SYSTEM VALIDATION	PREPARE READINESS FOR OPS MSNS	On CPX DEPLOY 10-25 JAN
Materiel	SEALIFT (NOW UNDERWAY)	ADVON MATERIEL AIRLIFT PREPARATION MOVEMENT	PERSONNEL AIRLIFT PREPARATION MOVEMENT	
Decision Date	1 NOV AIRLIFT DOD & CIA	15 DEC AIRCRAFT MOVEMENT 303 COMMITTEE	15 JAN FIRST MSN APPROVAL 303 COMMITTEE & PRESIDENT	

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#### IV. COVER AND SECURITY

The possible political consequences of what might be construed as a military mission necessitate operations in an essentially civilian and covert atmosphere.

The aircraft will operate without military markings. The operating detachment will bear a military designation, but will be predominantly civilian, with the bulk of personnel representing Lockheed and Pratt & Whitney. The detachment commander and senior staff, however, will be Air Force officers or CIA civilians

Since the unique vehicle and nature of the operation will provoke many questions that cannot be answered by a plausible cover story, preliminary thinking is that emphasis will be on security rather than cover. Maximum physical controls will be in effect. The unit will create the illusion, at least, that some sort of environmental or technical testing is involved. As necessary, the operation will be described as classified, with no details to be released.

In the event of an operational loss over hostile territory, the pilot will be instructed to admit CIA affiliation.

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